MATHEMATICS CROSSWALK
2008 DRAFT MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 7

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL				
Strand 1: Number and Operations				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Number Sense	1	Apply multiple representations in recognizing and translating between different forms of rational numbers (fractions, decimals, percents, and ratios) in meaningful contexts.	1	Express fractions as terminating or repeating decimals.
			4	Choose the appropriate signed real number to represent a contextual situation.
	2	Find or use factors, multiples, or prime factorization within a set of numbers.	2	Identify the greatest common factor for a set of whole numbers.
			3	Determine the least common multiple for a set of whole numbers.
	3	Compare and order rational numbers using various models and representations (e.g., number line, coordinate graph).	6	Locate integers on a number line.
			7	Order integers.
	4	Find and model absolute value from contextual situations.	5	Recognize the absolute value of a number used in contextual situations.
			S1C2-08	Apply the symbols + and – to represent positive and negative, and "| |" to represent absolute value.
	M08-S1C1-02	**Moved to Grade 8**	8	Classify rational numbers as natural, whole, or integers.
2. Numerical Operations	1	Solve contextual problems including word problems with rational numbers and operations using exact answers or estimates as appropriate.	3	Select the grade-level appropriate operation to solve word problems.
			4	Solve word problems using grade-level appropriate operations and numbers.
			S1C3-01	Solve grade-level appropriate problems using estimation.

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Strand 1: Number and Operations				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
2. Numerical Operations	2	Solve problems with integers by selecting and using appropriate operations (+, -, x, ÷).	1	Add integers.
			2	Subtract integers.
			3	Select the grade-level appropriate operation to solve word problems.
			5	Multiply integers.
			6	Divide integers.
			8	Apply the symbols + and – to represent positive and negative, and "| |" to represent absolute value.
	3	Simplify numerical expressions using the order of operations and appropriate mathematical properties (i.e., commutative, distributive, associative, identity, inverse).	7	Apply grade-level appropriate properties to assist in computation.
			12	Simplify numerical expressions using the order of operations with grade- appropriate operations on number sets.
	4	Solve problems involving percentages (including tax, discount, tips, and part/whole relationships) using ratio and proportionality.	10	Calculate the percent of a given number.
	5	Express or interpret numbers using scientific notation from real-life contexts (positive exponents only).	11	Convert numbers expressed in standard notation to scientific notation and vice versa (positive exponents only).
		REMOVED (This skill is required throughout the standard).	9	Use grade-level appropriate mathematical terminology.

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Strand 1: Number and Operations				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
3. Estimation	1	Estimate rational numbers, common irrational numbers, and integers in context by applying benchmarks.	S1C1-04	Choose the appropriate signed real number to represent a contextual situation.
	2	Make estimates appropriate to a given situation by: • identifying when estimation is appropriate, • determining the level of accuracy needed, • selecting the appropriate method of estimation, • analyzing the effect of an estimation method on the accuracy of results, and • verifying solutions and determining the reasonableness of results in a variety of situations including but not limited to calculator and computer results.	1	Solve grade-level appropriate problems using estimation.
			2	Use estimation to verify the reasonableness of a calculation (e.g., Is –2.5 x 18 about –50?).
			3	Determine whether an estimation of an area is approximately equal to the actual measure.
			4	Determine whether an estimation of an angle is approximately equal to the actual measure.
			6	Verify the reasonableness of estimates made from calculator results within a contextual situation.
	3	Estimate square roots of numbers less than 1,000 between two whole numbers.*		
	4	Estimate the measure of an object in one system given the measure of that object in another system and the approximate conversion factor.	S4C4-02	Measure to the appropriate degree of accuracy.
			S4C4-03	Convert a measurement from U.S. customary to metric, and vice versa.
	M07-S4C4-05	**Moved to Strand 4 Concept 4**	5	Determine whether an estimation of the circumference of a circle is approximately equal to the actual measure.

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Strand 2: Data Analysis, Probability, and Discrete Mathematics				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Data Analysis (Statistics)	1	Solve problems by selecting, constructing, interpreting and answering questions based on contextual displays of data including multi-line graphs and scatter plots.	1	Formulate questions to collect data in contextual situations.
			2	Construct a circle graph with appropriate labels and title from organized data.
			3	Determine when it is appropriate to use histograms, line graphs, double bar graphs, and stem-and-leaf plots.
			4	Interpret data displays including histograms, stem-and-leaf plots, circle graphs, and double line graphs.
			5	Answer questions based on data displays including histograms, stem-and-leaf plots, circle graphs, and double line graphs.
			9	Solve contextual problems using histograms, line graphs of continuous data, double bar graphs, and stem-and-leaf plots.
	2	Solve contextual problems by applying the following measures for a data set (extreme values, mean, median, mode, range, and frequency); state how the measures describe the data.	6	Find the mean, median, mode, and range of a given numerical data set.
	3	Interpret trends in data related to the same investigation, estimate values for missing data, and predict values for points beyond the data set.	7	Interpret trends from displayed data.
			8	Compare trends in data related to the same investigation.
	4	Determine when it is appropriate to use histograms, line graphs, double bar graphs, and stem-and-leaf plots.	3	Determine when it is appropriate to use histograms, line graphs, double bar graphs, and stem-and-leaf plots.
	5	Distinguish between a random and non-random sample.*		

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Strand 2: Data Analysis, Probability, and Discrete Mathematics				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
2. Probability	1	Determine the theoretical probability that a specific two-stage event will occur in a familiar context and express as a fraction, decimal, and percent.*		
	2	Experiment with different events to determine whether the event is dependent or independent.*		
	3	Determine and estimate the theoretical probability of simple events through experimentation or simulation.	1	Determine the probability that a specific event will occur in a single stage probability experiment (e.g., Find the probability of drawing a red marble from a bag with 3 red, 5 blue, and 9 black marbles.).
			3	Predict the outcome of a grade-level appropriate probability experiment.
			4	Record the data from performing a grade-level appropriate probability experiment.
			5	Compare the outcome of an experiment to predictions made prior to performing the experiment.
			6	Make predictions from the results of student-generated experiments using objects (e.g., coins, spinners, number cubes, cards).
	4	Compare the results of two repetitions of the same probability event.	7	Compare the results of two repetitions of the same grade-level appropriate probability experiment.
	5	Compare probabilities to determine the fairness of a contextual situation.	2	Compare probabilities to determine the fairness of a contextual situation (e.g. If John wins when two or greater shows after a six-sided number cube is rolled and Joaquin wins otherwise, is this a fair game?).
3. Discrete Mathematics – Systematic Listing and Counting	1	Solve counting problems using Venn diagrams by representing these principles algebraically.	1	Determine all possible outcomes involving the combination of up to three sets of objects (e.g., How many outfits can be made with 3 pants, 2 tee shirts and 2 pairs of shoes?).

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Strand 2: Data Analysis, Probability, and Discrete Mathematics				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
3. Discrete Mathematics – Systematic Listing and Counting	2	Analyze relationships among the tree diagrams where items repeat and do not repeat; make numerical connections to the multiplication principle of counting.	2	Determine all possible arrangements of a given set, using a systematic list, table, tree diagram, or other representation.
4. Discrete Mathematics – Vertex-Edge Graphs	1	Use vertex-edge graphs to represent and find solutions to practical problems related to Euler/Hamilton paths and circuits.	1	Find the shortest circuit on a map that makes a tour of specified sites (vertex-edge graph).
	2	Devise and describe step-by-step procedures related to working with discrete graphs.*		

Strand 3: Patterns, Algebra, and Functions				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Patterns	1	Recognize, describe, or extend numerical and geometric patterns using words or symbols; make conjectures about these patterns.	1	Communicate a grade-level appropriate recursive pattern, using symbols or numbers.
			2	Extend a grade-level appropriate recursive pattern.
			3	Solve grade-level appropriate recursive pattern problems.
2. Functions and Relationships	1	Define a simple function given a pattern of two variables using appropriate algebraic notation.	1	Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model).
	2	Translate between different representations of linear expressions using graphs and tables.*		
	3	Use a table of values to graph a linear equation.	S4C3-01	Graph data points in (x, y) form in any quadrant of a coordinate grid.

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Strand 3: Patterns, Algebra, and Functions				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
3. Algebraic Representations	1	Write a single variable expression or one-step equation given a contextual situation.	2	Use variables in contextual situations.
			3	Translate a written sentence into a one-step, one-variable algebraic equation.
			4	Translate a sentence written in context into an algebraic equation involving one operation.
	2	Evaluate an expression containing two variables by substituting numbers for the variable (including integers, fractions, and decimals).	1	Evaluate an expression containing two variables by substituting integers for the variable (e.g., 7*x* + *m*, when *x* = -4 and *m* = 12).
	3	Solve one-step equations using inverse properties with positive rational numbers.	5	Solve one-step equations using inverse operations with positive rational numbers (e.g., $\frac{2}{3}n = 6$).
	4	Write and solve one-step inequalities with whole numbers in and out of context. *		
	5	Solve two-step equations with whole numbers.*		
4. Analysis of Change	1	Use graphs and other representations to model and analyze change.	1	Analyze change in various linear contextual situations.

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Strand 4: Geometry and Measurement				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Geometric Properties	1	Recognize the relationship between central angles and intercepted arcs; identify arcs and chords of a circle.	7	Recognize the relationship between central angles and intercepted arcs.
			8	Identify arcs and chords of a circle.
	2	Draw and classify 3-dimensional geometric figures with appropriate labels showing specified attributes of parallelism, congruence, perpendicularity, and symmetry.	2	Classify 3-dimensional solids by their configuration and properties (e.g., parallelism, perpendicularity and congruency).
	3	Model the relationship between the number of sides in regular polygons and the sum of the interior angles.*		
	4	Identify corresponding parts of congruent figures.	10	Identify corresponding parts of congruent polygons as congruent.
	5	Analyze and determine properties and relationships of angles created by parallel lines cut by a transversal.	6	Identify the angles created by two lines and a transversal.
	M05-S4C1-02	**Moved to Grade 5**	1	Draw a geometric figure showing specified properties (e.g., Draw an obtuse triangle.).
	M04-S4C1-03	**Moved to Grade 4**	3	Identify the net (2-dimensional representation) that corresponds to a rectangular prism, cone, or cylinder.
	M05-S4C4-06	**Moved to Grade 5**	4	Distinguish between length, area, and volume, using 2- and 3-dimensional geometric figures.
	M05-S4C1-02	**Moved to Grade 6**	5	Draw polygons with appropriate labels.
	MHS-S4C1-07	**Moved to High School**	9	Model the triangle inequality theorem using manipulatives.

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Strand 4: Geometry and Measurement				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
2. Transformation of Shapes	1	Model the result of a double transformation (translations or reflections) of a figure on a coordinate plane using all four quadrants.	2	Recognize simple single rotations, translations or reflections on a coordinate grid.
	M08-S4C2-02	**Moved to Grade 8**	1	Identify rotations about a point, using pictorial models.
3. Coordinate Geometry		**No performance objectives at this grade level.**		
	M06-S4C3-01	**Moved to Grade 6**	1	Graph data points in (x, y) form in any quadrant of a coordinate grid.
	M06-S4C3-02	**Moved to Grade 6**	2	State the missing coordinate of a given figure in any quadrant of a coordinate grid using geometric properties (e.g., Find the coordinates of the missing vertex of a rectangle when two adjacent sides are drawn.).
4. Measurement	1	Compare estimated to actual lengths based on scale drawings or maps.	8	Compare estimated to actual lengths based on scale drawings or maps.
	2	Identify the appropriate unit of measure to compute the volume of an object.	1	Identify the appropriate unit of measure for the volume of an object (e.g., cubic inches or cubic cm).
	3	Measure to the appropriate degree of accuracy.	2	Measure to the appropriate degree of accuracy.
	4	Identify polygons having the same perimeter or area.	7	Identify polygons having the same perimeter or area.

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Strand 4: Geometry and Measurement				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
4. Measurement	5	Solve problems involving the circumference and area of a circle by calculating and estimating.	4	Solve problems involving the circumference of a circle.
			5	Solve problems involving the area of a circle.
			6	Solve problems for the areas of parallelograms, triangles, and circles.
			S1C3-05	Determine whether an estimation of the circumference of a circle is approximately equal to the actual measure.
	6	Create a net to calculate the surface area of a given solid.*		
	M07-S1C3-04	**Moved to Strand 1 Concept 3**	3	Convert a measurement from U.S. customary to metric, and vice versa.
	M05-S4C4-05 M07-S4C4-05	**Moved to Grade 5 (parallelograms and triangle); circles are in Grade 7.**	6	Solve problems for the areas of parallelograms, triangles, and circles.

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Strand 5: Structure and Logic				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Algorithms and Algorithmic Thinking	1	Create an algorithm to determine the area of a given composite figure.*		
	2	Evaluate the quality and accuracy of an answer based on given information and procedures used.*		
	M05-S5C1-01	**Moved to Grade 5**	1	Discriminate necessary information from unnecessary information in a given grade-level appropriate word problem.
	M06-S5C1-01	**Moved to Grade 6**	2	Analyze algorithms for computing with fractions.
2. Logic, Reasoning, Arguments, and Mathematical Proof	1	Develop the problem-solving strategy of making a simpler problem.*		
	2	Solve a non-routine problem by selecting and using a strategy.*		
	3	Solve logic problems using multiple variables and multiple conditional statements using words, pictures, and charts.	1	Solve a logic problem using multiple variables.
	4	Use manipulatives and other modeling techniques to defend π as a ratio of circumference to diameter.	S4C4-04	Solve problems involving the circumference of a circle.
	5	Explain that the process of solving equations is a deductive proof (i.e., use properties of number systems to justify each step in an equation).*		

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